



- 1 -

PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

#5 Response

11-26-99
JRS

In re Patent Application of

JÖRG LAWRENZ-STOLZ ✓

Application No. 09/283,169 ✓

Filed: April 1, 1999 ✓

For: AN ASSEMBLY FOR FOCUSING
AND COUPLING THE RADIATION
PRODUCED BY A
SEMICONDUCTOR LASER INTO
OPTICAL FIBERS

Group Art Unit: 2874

Examiner: H. Sanghavi

**RESPONSE TO OFFICE ACTION
MAILED SEPTEMBER 15, 1999**

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CERTIFICATE OF MAILING

I hereby certify that this correspondence is being deposited with the United States Postal Service as first class mail in an envelope addressed to: Box Non-Fee Amendment, Assistant Commissioner for Patents, Washington, DC 20231, on November 16, 1999.

LIMBACH & LIMBACH LLP

Date: 11/16/99

By:

Georgia K. Stith
Georgia K. Stith

Box Non-Fee Amendment
Assistant Commissioner for Patents
Washington, DC 20231

Sir:

In response to the Office Action dated September 15, 1999, Applicant responds as follows:

REMARKS

Claims 10, 12 and 14-21 are pending in this application. These claims relate to a diode laser module where light from a linear laser diode array is coupled into a plurality of optical transport fibers. The transport fibers are mounted on a holder arranged so that the light entrance sides thereof form a linear array. A cylindrical fiber lens having a length at least as long as the linear diode array is attached directly to the light entrance sides of the transport fibers. In accordance with the subject invention, the fiber lens is attached to the transport fibers independent of the holder, using a bead of glue. The composite structure of the linear array of fibers and the lens is aligned with the linear array of laser diodes.

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In the Office Action, the Examiner relied on the patents to d'Auria and Comerford to show the basic components of the claimed structure. The Examiner cited the patent to Dakss for its teaching of using glue to mount a microsphere lens on the end of a fiber. The Examiner stated that in view of the d'Auria apparatus and the teachings of Dakss, the ordinary artisan would have found it obvious at the time of the invention to attach the cylindrical fiber lens to each of the optical fibers using a gluing step to avoid the problem of misalignment. Applicant respectfully disagrees.

In the first instance, it should be noted that the Dakss patent relates to the attachment of individual microspheres to individual fibers. There is no hint or suggestion that this method could be applied to simultaneously attaching an elongated fiber lens to multiple transport fibers.

The method in Dakss is directed very specifically to single fibers and single lenses. As show in Figures 2-8 therein, a bead of glue is added to the end of the fiber. The fiber is then lowered into contact with a single spherical ball. The glue causes the lens to adhere to the fiber. The fiber is then raised and the glue is cured with a light source.

The approach described in Dakss could not be used to attach a cylindrical lens to multiple fibers simultaneously. More specifically, Dakss has no teaching whatsoever as to how one might line up all the transport fibers and mate them in an aligned fashion with an elongated fiber lens. As the Dakss patent is the only reference relied upon by the Examiner related to the concept of gluing a lens to a fiber, this glaring deficiency should be enough to defeat the obviousness argument.

The Examiner's suggestion that a combination of the bits and pieces of the teachings of the various references could be used to construct the claimed invention is also improper hindsight. As set forth in MPEP 2143.01, the prior art must provide some suggestion or motivation to modify the references in accordance with the claimed invention. Further, the proposed modification cannot change the principle of operation of a reference. Yet, this is exactly what would happen with the combination proposed by the Examiner. More specifically, the d'Auria reference teaches one skilled in the art that the proper

way to align a cylindrical lens with multiple fibers is to first glue the fiber array to a fixed base and then glue the fiber lens to the base. In d'Auria, the base is relied upon to create the proper alignment between the transport fiber and the cylindrical lens.

It is the Examiner's position that one skilled in the art viewing the Dakss patent would be motivated to add glue between the entrance ends of the transport fiber and a cylindrical lens. This proposed combination is flawed. As noted, d'Auria already provides a mechanism for aligning the lens and the fibers. If one tried to also glue the lens to the fibers, the system would be stressed, since the fiber lens would be glued to two different elements. One skilled in the art would not choose that approach.

One skilled in the art would also not be motivated to abandon the step of gluing the fiber lens to the base as taught in d'Auria in favor of the approach of Dakss. First, such a change would result in the complete change of d'Auria which is not permitted in an obviousness rejection. Second, Dakss only teaches mounting individual and separate lenses to individual fibers. There is nothing in Dakss which would teach one skilled in the art how to modify that approach to make it work with an elongated fiber lens and multiple fibers.

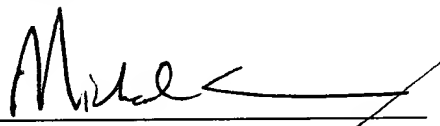
There is nothing in the teachings of either d'Auria, Dakss or Comerford which leads to Applicant's specifically claimed concept of mounting the transport fibers on a support, while leaving the cylindrical lens independent of the holder and relying only on the glue for connecting the cylindrical lens to the multiple transport fibers. One skilled in the art would not be motivated by anything in these references to eliminate that glue connection between the cylindrical lens and the support of d'Auria, which is a specifically claimed feature in Applicant's invention.

It is respectfully submitted that Applicant's invention, which is defined by the specific combination of mounting a plurality of transport fibers on a support and gluing an elongated cylindrical lens to the entrance faces of the fibers while leaving the lens independent of the support is neither anticipated nor rendered obvious by the claims. Based on the above, it is believed that the claims pending in the application define patentable subject matter and allowance thereof is respectfully solicited.

Respectfully submitted,

LIMBACH & LIMBACH L.L.P.

Dated: 11/16/99

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